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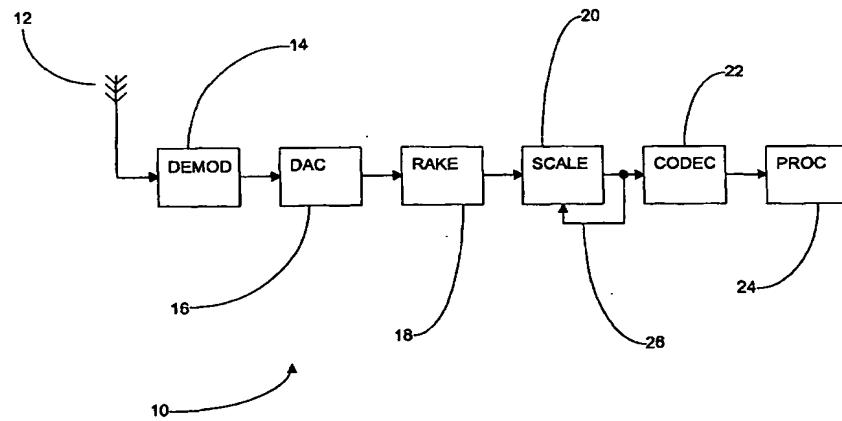
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(54) Title: STATISTICAL SCALING OF SOFT DECISIONS BEFORE DECODING



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(57) Abstract: A wireless-communications unit has a receiver chain including a codec decoding the output of a rake receiver. Soft decisions passing from the rake receiver to the codec are scaled. The scaling factor can be tuned by monitoring a function based on the cumulative probability distribution function of the scaled soft decisions.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H03M13/41 H03M13/45 H04L1/00 H04L25/06

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 H03M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 02 47276 A (KONINKL PHILIPS ELECTRONICS NV) 13 June 2002 (2002-06-13) page 2, line 11 – line 14 page 3, line 17 – line 21 figures 3,4 ---	1,4,5, 8-11
A	US 6 347 124 B1 (ANTIA YEZDI ET AL) 12 February 2002 (2002-02-12) column 4, line 34 – line 67 figure 3 ---	1,4,5, 8-11
A	US 5 271 042 A (BORTH DAVID F ET AL) 14 December 1993 (1993-12-14) column 3, line 37 – line 40 figure 1 ---	1,4,5, 8-11 -/-

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	LEE Y K ET AL: "Normalization, windowing and quantization of soft-decision Viterbi decoder inputs in CDMA systems" VEHICULAR TECHNOLOGY CONFERENCE, 1999 IEEE 49TH HOUSTON, TX, USA 16-20 MAY 1999, PISCATAWAY, NJ, USA, IEEE, US, 16 May 1999 (1999-05-16), pages 221-225, XP010341929 ISBN: 0-7803-5565-2 abstract ----- WO 03 085917 A (KRUEGER MARTIN ;INFINEON TECHNOLOGIES AG (DE)) 16 October 2003 (2003-10-16) page 11, line 1 - line 4 -----	1,4,5, 8-11
P,X		1,5,10, 11

INTERNATIONAL SEARCH REPORT

PCT/GB 03/04755

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 0247276	- A	13-06-2002	US	2002067780 A1	06-06-2002
			CN	1404656 T	19-03-2003
			WO	0247276 A2	13-06-2002
			EP	1356597 A2	29-10-2003
US 6347124	B1	12-02-2002		NONE	
US 5271042	A	14-12-1993	AU	637166 B2	20-05-1993
			AU	6729490 A	16-05-1991
			CA	2066270 A1	14-04-1991
			CN	1050958 A ,B	24-04-1991
			DE	69029330 D1	16-01-1997
			DE	69029330 T2	28-05-1997
			DK	495006 T3	23-12-1996
			EP	0495006 A1	22-07-1992
			ES	2095261 T3	16-02-1997
			IE	903295 A1	24-04-1991
			JP	2591343 B2	19-03-1997
			JP	5504872 T	22-07-1993
			KR	9608984 B1	10-07-1996
			MX	171792 B	15-11-1993
			PT	95577 A ,B	31-08-1992
			TR	26468 A	15-03-1995
			WO	9106165 A1	02-05-1991
			US	5144644 A	01-09-1992
WO 03085917	- A	16-10-2003	DE	10214908 A1	13-11-2003
			WO	03085917 A1	16-10-2003